

1 WHAT IS CLAIMED IS:

2 A carpet composition, recyclable without a separation step, having
3 from 50 to 100 percent polymeric material comprising:

- 4 a) a tufted primary backing having a primary backing and tufts of
5 carpet fibers penetrating a bottom surface of the primary
6 backing and protruding from a top surface of the primary
7 backing;
- 8 b) a secondary backing material; and
- 9 c) an extruded adhesive material or a coextrusion of two or more
10 extruded adhesive materials binding an upper surface of the
11 secondary backing material to the bottom surface of the primary
12 backing;

13 wherein the carpet fibers, primary backing material and secondary
14 backing material are selected from the group consisting of
15 polypropylene, polyester, acrylics, polyethylene, polyamide, nylon,
16 wool, cotton, rayon and combinations thereof;

17 and wherein the adhesive material comprises an amorphous
18 polyethylene copolymer selected from the group consisting of ethylene
19 methyl acrylate, ethylene normal butyl acrylate, and blends of two or
20 more polyethylene copolymers.

- 21 2. The carpet composition of claim 1 wherein the extruded adhesive
22 material comprises a middle layer of polyethylene sandwiched between
23 two outer layers selected from the group consisting of ethylene methyl
24 acrylate and ethylene normal butyl acrylate.

- 1 3. The carpet composition of claim 2 wherein the middle polyethylene
2 layer of the extruded adhesive material is from 10 to 90 weight percent
3 of the extruded adhesive material and each of the two outer layers is
4 from 5 to 45 weight percent of the extruded adhesive material.
- 5 4. The carpet composition of claim 1 wherein the adhesive material
6 further comprises maleic anhydride.
- 7 5. The carpet composition of claim 1 wherein the adhesive material is a
8 coextruded blend of ethylene methyl acrylate copolymers and
9 polymers selected from the group consisting of low density
10 polyethylenes, linear low density polyethylenes, high density
11 polyethylenes, ultra low density polyethylene having a density less
12 than 0.915 density, ethylene-propylene copolymers, elastomers,
13 rubber, EPDM rubber, styrenic copolymers of butadiene, styrenic
14 copolymers of acrylonitrile, styrenic copolymers of ethylene,
15 metallocene based polyethylenes, polypropylene, polyester, ethylene
16 acrylic acid copolymers, ethylene methyl acrylic acid copolymers, butyl
17 acrylate copolymers, ethylene vinyl acetate copolymers, ionomers,
18 polyamides, and maleic anhydrides.
- 19 6. The carpet composition of claim 1 wherein the adhesive material has a
20 thickness of from 0.001 inches to 0.050 inches.
- 21 7. The carpet composition of claim 1 wherein the adhesive material
22 further comprises additives selected from the group consisting of flame
23 retardants, odor reduction additives, scent enhancing additives and
24 ultra-violet light protection additives.

- 1 8. The carpet composition of claim 1 wherein the adhesive material
2 further comprises fillers selected from the group consisting of talc,
3 calcium carbonate and other inorganic fillers.
- 4 9. A method of making a carpet, the carpet comprising a tufted primary
5 backing with a primary backing and tufts of carpet fibers penetrating a
6 bottom surface of the primary backing and protruding from a top
7 surface of the primary backing; a secondary backing material; and an
8 adhesive material binding an upper surface of the secondary backing
9 material to the bottom surface of the tufted primary backing; the carpet
10 fibers, primary backing material and secondary backing material being
11 selected from the group consisting of polypropylene, polyester,
12 acrylics, polyethylene, polyamide, nylon, wool, cotton, rayon and
13 combinations thereof and the adhesive material comprising an
14 amorphous polyethylene copolymer selected from the group consisting
15 of ethylene methyl acrylate and ethylene normal butyl acrylate; the
16 method comprising the steps of:
- 17 a) extruding a heated sheet of the adhesive material; and
- 18 b) continuously fusing together in a two roll nip the upper surface of
19 the secondary backing and the bottom surface of the tufted primary
20 backing with the heated sheet.
- 21 10. A method according to claim 9 wherein the two roll nip comprises a
22 hard roll and a soft roll.
- 23 11. A method according to claim 10 wherein the soft roll has a diameter of
24 from 4 to 20 inches and a hardness of from 5 to 100 shore D.

- 1 12. A method according to claim 10 wherein the soft roll is comprised of
2 rubber.
- 3 13. A method according to claim 10 wherein the hard roll is a cooled metal
4 chill roll capable of maintaining a temperature below 120°F.
- 5 14. A method according to claim 11 wherein the two roll nip has pressure
6 between 20 and 200 pounds per linear inch.
- 7 15. A method of using at least one of ethylene methyl acrylate copolymer
8 and ethylene normal butyl acrylate copolymer to manufacture a carpet,
9 the carpet comprising a tufted primary backing with a primary backing
10 and tufts of carpet fibers penetrating a bottom surface of the primary
11 backing and protruding from a top surface of the primary backing; a
12 secondary backing material; and an adhesive material binding an
13 upper surface of the secondary backing material to the bottom surface
14 of the tufted primary backing; the carpet fibers, primary backing
15 material and secondary backing material being selected from the group
16 consisting of polypropylene, polyester, acrylics, polyethylene,
17 polyamide, nylon, wool, cotton, rayon and combinations thereof and
18 the adhesive material comprising an amorphous polyethylene
19 copolymer selected from the group consisting of ethylene methyl
20 acrylate and ethylene normal butyl acrylate; the method comprising the
21 steps of:
- 22 a) extruding a heated sheet of the adhesive material; and
- 23 b) continuously fusing together in a two roll nip the upper surface of
24 the secondary backing and the bottom surface of the tufted primary
25 backing with the heated sheet.

- 1 16. A method according to claim 15 wherein the two roll nip comprises a
2 hard roll and a soft roll.
- 3 17. A method according to claim 16 wherein the soft roll has a diameter of
4 from 4 to 20 inches and a hardness of from 5 to 100 shore D.
- 5 18. A method according to claim 16 wherein the soft roll is comprised of
6 rubber.
- 7 19. A method according to claim 16 wherein the hard roll is a cooled metal
8 chill roll capable of maintaining a temperature below 120°F.
- 9 20. A method according to claim 17 wherein the two roll nip has pressure
10 between 20 and 200 pounds per linear inch.
- 11 21. A method of recycling a carpet, the carpet comprising a tufted primary
12 backing with a primary backing and tufts of carpet fibers penetrating a
13 bottom surface of the primary backing and protruding from a top
14 surface of the primary backing; a secondary backing material; and an
15 extruded adhesive material or a coextruded blend of two or more
16 extruded adhesive materials binding an upper surface of the secondary
17 backing material to the bottom surface of the primary backing; the
18 carpet fibers, primary backing material and secondary backing material
19 being selected from the group consisting of polypropylene, polyester,
20 acrylics, polyethylene, polyamide, nylon, wool, cotton, rayon and
21 combinations thereof and the adhesive material comprising an
22 amorphous polyethylene copolymer selected from the group consisting
23 of ethylene methyl acrylate and ethylene normal butyl acrylate; the
24 method comprising the step of melting the carpet to obtain an
25 extrudate feedstock.

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